

Amendments to the claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

1. (Currently Withdrawn) A method for regulating the expression of a preselected gene in a cell, comprising the steps of:

providing a cell wherein the expression of the preselected gene is under the control of a preselected transcriptional regulatory protein expressed from a gene in the cell; and

causing RNA silencing against the mRNA transcript for the transcriptional regulatory protein so that the activity of the transcriptional regulatory protein in the cell is diminished.

2. (Currently Withdrawn) The method of claim 1, wherein the transcriptional regulatory protein is a transcriptional repressor protein.

3. (Currently Withdrawn) The method of claim 1, wherein the transcriptional regulatory protein is a transcriptional activator protein.

4. (Currently Withdrawn) The method of claim 1, wherein at least one of the preselected gene and the gene encoding the transcriptional regulatory protein is a transgene.

5. (Currently Withdrawn) The method of claim 1, wherein the preselected gene does not naturally occur under control of the transcriptional regulatory protein.

6. (Currently Withdrawn) A method for regulating the expression of a preselected gene in a cell, comprising the steps of:

providing a cell wherein the expression of the preselected gene is under the control of a preselected transcription-regulating RNA expressed from a gene in the cell; and

causing RNA silencing against the transcription regulating RNA.

7. (Currently Withdrawn) The method of claim 6, wherein at least one of the preselected gene and the gene encoding the transcription-regulating RNA is a transgene.

8. (Currently Withdrawn) The method of claim 6, wherein the preselected gene does not naturally occur under control of the transcription regulating RNA.

9. (Currently Withdrawn) A cell wherein the expression of a preselected gene is responsive to the presence of polynucleic molecules having at least one region of predetermined sequence, comprising:

a preselected gene, wherein the expression of the gene is under the control of a preselected transcriptional regulator selected from the group consisting of a transcriptional regulatory protein or a transcription-regulating RNA molecule;

a gene expressing the preselected transcriptional regulator,

wherein the gene expressing the preselected transcriptional regulator comprises a region of sequence rendering the RNA transcript of the gene as a target for RNA silencing as a result of the presence of the at least one polynucleic acid molecule comprising the predetermined sequence in the cell.

10. (Currently Withdrawn) The cell of claim 9, wherein the region of sequence of the gene for the transcriptional regulator is at least substantially homologous to a region of the predetermined sequence.

11. (Currently Withdrawn) The cell of claim 9, wherein the region of sequence of the gene for the transcriptional regulator is at least substantially complementary to a region of the predetermined sequence.

12. (Currently Withdrawn) The cell of claim 9, wherein the region of sequence of the gene for the transcriptional regulator is selected to render the RNA transcript of the gene a target for transitive RNA silencing.

13. (Currently Withdrawn) A transgenic multi-cellular organism comprising at least one cell according to claim 9.

14. (Currently Withdrawn) A transgenic animal comprising at least one cell according to claim 9.

15. (Currently Withdrawn) A transgenic plant comprising at least one cell according to claim 9.

16. (Currently Withdrawn) A cell wherein the expression of a preselected gene is responsive to the presence of polynucleic molecules having at least one region of predetermined sequence, comprising:

a preselected gene, wherein the expression of the gene is under the control of a preselected transcriptional regulator selected from the group consisting of a transcriptional regulatory protein or a transcription-regulating RNA molecule;

a gene expressing the preselected transcriptional regulator,

means for rendering the RNA transcript of the gene as a target for RNA silencing in response to the presence of the at least one polynucleic acid molecule comprising the predetermined sequence in the cell.

17. (Currently Amended) A method for selectively and conditionally excising a preselected DNA sequence from a plant cellular genome in response to an unmodified plant viral double-stranded RNA molecule, comprising the steps of:

providing a plant cell comprising in its cellular genome a series of DNA sequences that includes an excisable sequence element that is bounded on either side by specific excision sequences, a repressible promoter operably linked to a gene encoding a site specific recombinase capable of recognizing the specific excision sequences, and a gene operably encoding a repressor protein specific for the repressible promoter, wherein the gene encoding the repressor molecule is modified to contain at least one region of complementarity with a strand of the viral double-stranded RNA molecule; and thereafter

providing the viral double stranded RNA molecule into the plant cell, thereby causing RNA silencing against the mRNA transcript for the repressor protein so that expression of the site specific recombinase is derepressed thereby causing excision of the excisable sequence element.

18. (Currently Amended) A plant cell wherein a preselected DNA sequence is conditionally excisable from the cellular genome in response to the presence in the cell of

an unmodified plant viral double-stranded RNA molecule having at least one region of predetermined sequence, the cell comprising:

a series of DNA sequences in its cellular genome that includes an excisable sequence element that is bounded on either side by specific excision sequences, a repressible promoter operably linked to a gene encoding a site specific recombinase capable of recognizing the specific excision sequences, and a gene operably encoding a repressor protein specific for the repressible promoter; and

means for causing RNA silencing against the mRNA transcript for the repressor protein in response to the presence in the cell of the unmodified viral double stranded RNA having the region of predetermined sequence so that expression of the site specific recombinase is derepressed thereby causing excision of the excisable sequence element.

19. (Originally Filed) The cell of claim 18, wherein the excisable sequence element comprises at least one expression cassette comprising at least one preselected gene.
20. (Previously Presented) A multi-cellular plant comprising at least one cell according to claim 18.
21. (Currently Withdrawn) The cell of claim 18, wherein the polynucleic acid molecule having at least one region of predetermined sequence is a viral polynucleic acid molecule.
22. (Canceled)
23. (Currently Withdrawn) The cell of 22, wherein the RNA molecule is a cellular RNA molecule.
24. (Canceled)
25. (Currently Amended) A method for conditionally bringing the expression of a preselected gene in a plant cell under the control of a preselected promoter, comprising the steps of:

providing a cell comprising a series of DNA sequences that includes a first promoter linked to a preselected gene, the promoter and preselected gene being separated by a blocking sequence that is in turn bounded on either side by specific excision sequences, a repressible promoter operably linked to a gene encoding a site specific

recombinase capable of recognizing the specific excision sequences, and a gene operably encoding a repressor protein specific for the repressible promoter; and thereafter

causing RNA silencing against the mRNA transcript for the repressor protein so that expression of the site specific recombinase is derepressed thereby causing excision of the blocking sequence thereby operably linking the first promoter and the preselected gene so that the expression of the preselected gene is under the control of the first promoter, by infecting the cell with a double-stranded plant RNA virus comprising sequence complementary to the RNA transcript of the repressor protein.

26. (Currently Withdrawn) The method according to claim 25, wherein the first promoter is a transiently-active promoter.

27. (Originally Filed) The method according to claim 25, wherein the first promoter is a constitutively-active promoter.

28. (Currently Withdrawn) The method according to claim 25, wherein the first promoter is an inducible promoter.

29. (Currently Amended) A plant cell wherein the expression of a preselected gene can conditionally be brought under the control of a preselected promoter in response to the presence in the cell of a plant viral double-stranded RNA molecule having at least one region of predetermined sequence, the cell comprising:

a series of DNA sequences in its cellular genome that includes a first promoter linked to a preselected gene, the promoter and preselected gene being separated by a blocking sequence that is in turn bounded on either side by specific excision sequences, a repressible promoter operably linked to a gene encoding a site specific recombinase capable of recognizing the specific excision sequences, and a gene operably encoding a repressor protein specific for the repressible promoter; and

means for causing RNA silencing against the mRNA transcript for the repressor protein in response to the presence in the cell of a plant viral double-stranded RNA molecule having the region of predetermined sequence so that expression of the site specific recombinase is derepressed thereby causing excision of the blocking sequence

thereby operably linking the first promoter and the preselected gene so that the expression of the preselected gene is under the control of the first promoter.

30. (Originally Filed) The cell of claim 29, wherein the blocking sequence comprises at least one expression cassette comprising at least one preselected gene.

31. (Currently Withdrawn) The cell of claim 29, wherein the first promoter is a transiently-active promoter.

32. (Originally Filed) The cell of claim 29, wherein the first promoter is a constitutively-active promoter.

33. (Currently Withdrawn) The cell of claim 29, wherein the first promoter is an inducible promoter.

34. (Currently Withdrawn) A multi-cellular organism comprising at least one cell according to claim 29.

35. (Currently Withdrawn) A transgenic animal comprising at least one cell according to claim 29.

36. (Originally Filed) A transgenic plant comprising at least one cell according to claim 29.

37. (Previously Added) The method of claim 17, wherein the cell is a transgenic plant cell.

38. (Previously Added) The cell of claim 18, wherein the cell is a transgenic plant cell.

39. (Previously Added) The method of claim 25, wherein the cell is a transgenic plant cell.

40. (Previously Added) The cell of claim 29, wherein the cell is a transgenic plant cell.